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RHODODENDRONS, DOCTORS AND INDIA, 1780–1860

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> If I were limited to only one flower in the garden I should unhesitatingly choose rhododendrons—for their grandeur and their delicacy; their fantastic range of colour, from almost black to glistening white; for their exquisite variety of design, ... for the many months in which they delight us, from early February, ... to the dusty days of August when the branches of the Polar Bear are laden with scented snow.
>
> Beverley Nichols[1]

Visitors to Scotland today, from February to August, can delight with Beverley Nichols in the grandeur, delicacy and colour of rhododendrons, but this was not always so; rhododendrons are not native to the British Isles. Before 1780 only a few species had been imported from North America and Switzerland but about that time a large number began to be imported from the Himalayas. A cause was the arrival in India of doctors employed by the East India Company who, as part of their medical course, had been trained in botany. This paper gives brief accounts of eight such doctors, seven of whose names are now associated with groups of rhododendrons—*R. falconeri, R. griffithii, R. hookeri, R. cinnabarinum roylei, R. smithii, R. wallichii (wallichianum)* and *R. wightii* (Fig 1). These men's interest in botany had arisen whilst they were medical students, most of them in Edinburgh. Several of them wrote books describing rhododendrons and other plants, beautifully illustrated. Some of these are now among the treasures of the College Library.

It will help to put this account in better perspective if first we say a little about the botanical gardens of the period. These provide not merely a geographical setting but more important a *modus operandi*, so to speak, for the medical-botanists with whom we are dealing. These gardens in order of foundation are first, and for the rhododendrons foremost, Edinburgh (1670), Kew London (1759), Calcutta (1786), and Saharanpur (1817).

BOTANICAL GARDENS

Royal Botanic Garden, Edinburgh[2]

The origins of the garden arose from the interest of two friends, both keen gardeners, Sir Robert Sibbald and Sir Andrew Balfour who were Presidents of the College of Physicians in 1684 and 1685. Sibbald describes how this came about in his autobiography.[3]

> I had become acquaint with Patrick Morray, Laird of Levingstone...; and I frequently went to Leviston, wher he had collected of plants... neer to a thousand. I made Dr Balfour his acquaintence with Levistone, which, ... gave the rise to the designe of establishing the medicine garden at Edinburgh. Doctor Balfour and I first resolved upon it, and obtained of John Brown, gardner of the North Yardes in the Abby, ane inclosure of some 400 foot of measure every way... By what we procured from Leviston and other gardens... we made a collection of eight or nyne hundred plants ther.

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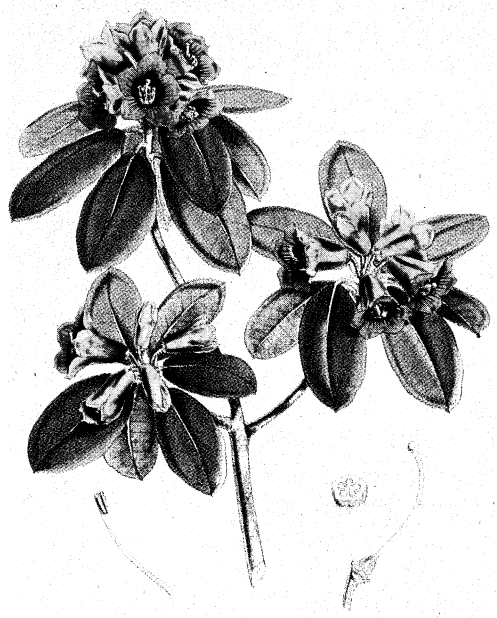

FIGURE 1

Top R. ROYLEI, bottom R. WALLICHII. From plates 36×50 cm, Tab VII and V in Hooker, J.D. ref. 15.

They obtained from the Town Council a lease of the garden belonging to Trinity Hospital situated where Waverley Station is now and marked by a commemorative plaque. There was then another garden in Edinburgh at Holyrood Abbey. Sibbald employed a gardener, James Sutherland, who supervised both gardens.[4] Sutherland was appointed by the Town Council as Professor of Botany in 1695, and under a warrant from William III as King's Botanist in 1699. Although he taught the apprentices who worked in the gardens, he did not give lectures to university students. Nor did any of his immediate successors in the Chair, although one, Charles Preston (professor 1706–12) was a Fellow of the College of Physicians. The first professor to teach in the university was Dr Charles Alston who had studied medicine at Leyden and obtained an MD there. He was appointed to the Chair in 1738 and held it until he died in 1760 aged 77.

In 1761 John Hope (1725–86) MD of Glasgow University was appointed to the Chair of Botany. In the following year he became King's Botanist and Superintendent of the Royal Garden. He was licensed by the College of Physicians to practise medicine and taught in the Royal Infirmary. However, Hope is much better known for having brought together the Physic Garden and the Royal Garden at a new site on the west side of Leith Walk known today as Gayfield Square. Dr Hope also obtained an endowment from the Crown in 1763.

At this point one may speculate whether the Botanic Garden acquired its 'Royal' title as the result of Dr Hope's successful amalgamation of the previously separate Royal Garden and the older Physic Garden, or whether the Warrant granted by William III to Sutherland as King's Botanist is the true occasion. Distinguished sources are curiously silent on this matter. At any rate the Royal Botanic Garden Edinburgh developed, give or take a few ups and downs.

Hope's successor in 1786 as professor of medicine and botany was Daniel Rutherford, remembered today as the discoverer of nitrogen and as the uncle of Sir Walter Scott. A busy physician he appears to have taken little interest in botany. He was succeeded in 1820 by Robert Graham (1786–1845) who graduated MD at Edinburgh and then went into practice in Glasgow, to be near his parents. An enthusiastic botanist, he started a botanic garden by private subscription and was made Lecturer and later Professor of Botany there. When he was appointed to the Regius Chair at Edinburgh he moved the garden and all its trees from Gayfield to its present site at Inverleith.[4] Fourteen and one half acres adjoining the garden of the Royal Caledonian Horticultural Society were bought from James Rocheid of Inverleith House. While there is a great deal more to be said about the subsequent development at Inverleith, we must not lose sight of Edinburgh's special place as a 'rhododendron garden'. Its Herbarium became acknowledged worldwide as the authority on the classification of the Genus.

The introduction of rhododendrons into Britain did not begin with the now all too familiar *R. ponticum*. Before 1800 the only varieties cultivated in the Royal Botanic Garden had come from North America and the European Alps, and the number could be counted on one hand.

Kew Gardens, London[5]

The garden at Kew, situated nowadays between Brentford and Richmond, was from its very beginnings in 1759 a royal institution, rather than a 'physic garden'. Princess Augusta (1719–72) mother of George III, began what was to become the greatest botanic garden in the world. She had the advice and encouragement of

John Stuart, 3rd Earl of Bute (1713–92), a man fittingly remembered by the plants named *Stuartia* and *Butea* rather than by his short period as Prime Minister (1762–3), ended by a disastrous tax on cider imposed to reduce a national debt of £114 million. Lest supporters of the Royal Botanic Garden Edinburgh run away with the notion that 'Scots' horticulture was nearly a century ahead of any comparable activity in England it has to be pointed out that at Chelsea a 'physic garden' had been established in 1673, and given by Sir Hans Sloane, a physician who was President of The Royal Society to the Society of Apothecaries in 1722. Indeed for the greater part of the 18th century, Desmond states in his recent history of Kew,[5] 'the Chelsea Physic Garden functioned as the country's principal centre for the receipt and despatch to other gardens of exotics from abroad'. Following Lord Bute, Kew was fortunate to receive the fulsome benefit and boundless energy of another wealthy patron.

Sir Joseph Banks (1743–1820). Natural history in general and botany in particular owe Banks an enormous debt. Coming of a wealthy family he took an early interest in things botanical while studying at Oxford. His voyages first to Labrador and Newfoundland and then, famously, with Cook to the Antipodes and after that to Iceland, all gained him an authority as a naturalist that began to match his considerable wealth. A formal introduction to George III in 1771 led to a lengthy association with the monarch. Two years later Banks had become in effect an honorary director of Kew—with royal patronage and approval. The King and Banks enjoyed a common interest in agriculture as much as in botany and gardens—a combination reflected in what was cultivated in the Royal Gardens, at Kew and elsewhere in or near London.

By this time many of the old established physic gardens in Europe had taken on the role of imperial clearing house-cum-nerve centre for colonial plant hunting and economic improvement. Kew under Banks' vigorous tutelage first followed this trend and by the early 1800s had transcended and then outshone the Continentals. Some of the surgeons/doctors employed by the East India Company became distinguished plant hunters and collectors—stimulated, aided and abetted by Banks for and on behalf of Kew. Banks became President of the Royal Society in 1778, he was knighted in 1795 and made Privy Councillor in 1797. He died in 1820, the same year as the King with whom he had striven in the furtherance of British interests. Quoting again from Desmond's splendid work on Kew,[5] 'The death of Sir Joseph Banks diminished the dynamism, the sense of purpose and direction that his presence had bestowed on Kew'. Indeed, it was not until eighteen years later when Sir William Jackson Hooker became Director that the 'dynamism and sense of purpose' was restored.

William Jackson Hooker, (1785–1865). He was a native of Norwich and as a boy was interested in natural history. Later as a young man he was attracted to botany by James Edward Smith (see below). After travel on the continent of Europe he became professor of botany at Glasgow University in 1820, leaving in 1841 to take charge at Kew. For the next twenty-five years Kew prospered—the imperial and colonial ties were strengthened and extended, grand designs were commissioned and splendid structures, e.g. the famous Palm House erected. The advancing of scientific research kept pace with the provision of exotic display. Hooker was knighted in 1836 and used his position of authority to the best advantage of botany in general by ensuring continuity of direction at the Royal

Garden. His son Joseph (see below) succeeded him as Director in 1865. Kew thereby continued to be in safe hands.

Royal Botanic Garden, Calcutta[6]

This was founded in 1786 by Robert Kyd about whom not a great deal is known save that he rose in the service of the Bengal infantry to attain the rank of lieutenant colonel by 1782. Prior to his death in 1793, the garden which he had laid out was taken over by the East India Company, and remained within their keep until the Mutiny in 1857. His successor Dr William Roxburgh (see below) with encouragement from Sir Joseph Banks at Kew made the Garden prosper. Roxburgh is credited, among other notable achievements, with the identification and propagation of nutmeg. This had been brought to India from the Moluccas at the time (1796–1802) when they were under British control. Subsequent introductions by way of the Botanical Garden included plants such as flax, tobacco, vanilla, coffee, rubber, tapioca and cocoa—with obvious economic benefit to India.

The Garden grew in stature under a series of dedicated and able Superintendents, and developed strong links with other botanical centres both in the United Kingdom and in other tropical areas such as the West Indies. The early superintendents all came from the medical services and accounts of four of them follow below. From 1871 to 1906 two members of the Indian Medical Service, Sir George King and Sir David Prain FRS, gave distinguished service to the Garden as successive superintendents. The first Indian Superintendent/Director to be appointed was Dr K. Biswas in 1937 the year during which the Botanic Garden celebrated its 150th Anniversary.

Possibly the most famous tree in the garden, certainly well-known to visitors, is the Giant Banyan—now well into its third century!

William Wright Smith, not a medical man, was appointed superintendent in 1908. He left in 1922 to take up appointments in Edinburgh as Professor of Botany and Keeper of the Botanic Garden. He retired in 1955 and was the last man to hold both these appointments and also the last to occupy the elegant Keeper's house in the Garden. Senior Fellows of the College may remember going out to Inverleith at eight o'clock in the morning to attend his lectures.

Saharanpur Garden

Saharanpur is situated about a hundred miles due north of Delhi and near to the Siwalik hills below Simla. The Botanical Garden (now the Horticultural Research Institute) was in existence before the end of the 18th century but in 1817 was taken over from the Mahrattas by the East India Company. There was a military station there and two army doctors, Royle and Falconer, were successively in charge of the gardens. Dr Govan (1787–1865) was appointed as its first superintendent. The first recognised botanist to have charge was Sir J. F. Duthie in 1876, author of *Flora of the Gangetic Plain* (2 vol). From 1887 the Garden was run on commercial lines and its main use was as a nursery for producing seeds and plants for sale. Much earlier, as we mention below, Saharanpur played an incidental but nonetheless vital role in the plant-hunting activities of Royle and Falconer. The essential point to make here is that from their beginnings and their links with Edinburgh and Kew came the introduction into Britain of Himalayan plants.

THE DOCTORS[7]

William Roxburgh 1751–1815 (Fig 2)

Kyd's successor as superintendent at Calcutta was Dr William Roxburgh. He was a native of Ayrshire and studied botany at the University of Edinburgh under John Hope. He also trained as a surgeon. His first appointment was as surgeon's mate at sea, and then the post as assistant surgeon with the East India Company at their Madras establishment. He became full surgeon and was stationed at various places in the province where he showed his versatility by cultivating and collecting specimens of several hundred useful and interesting plants leading to his appointments as botanist in the Carnatic and, after Kyd's death in 1793, as superintendent of the Calcutta Botanical Garden. While on leave in 1790 he

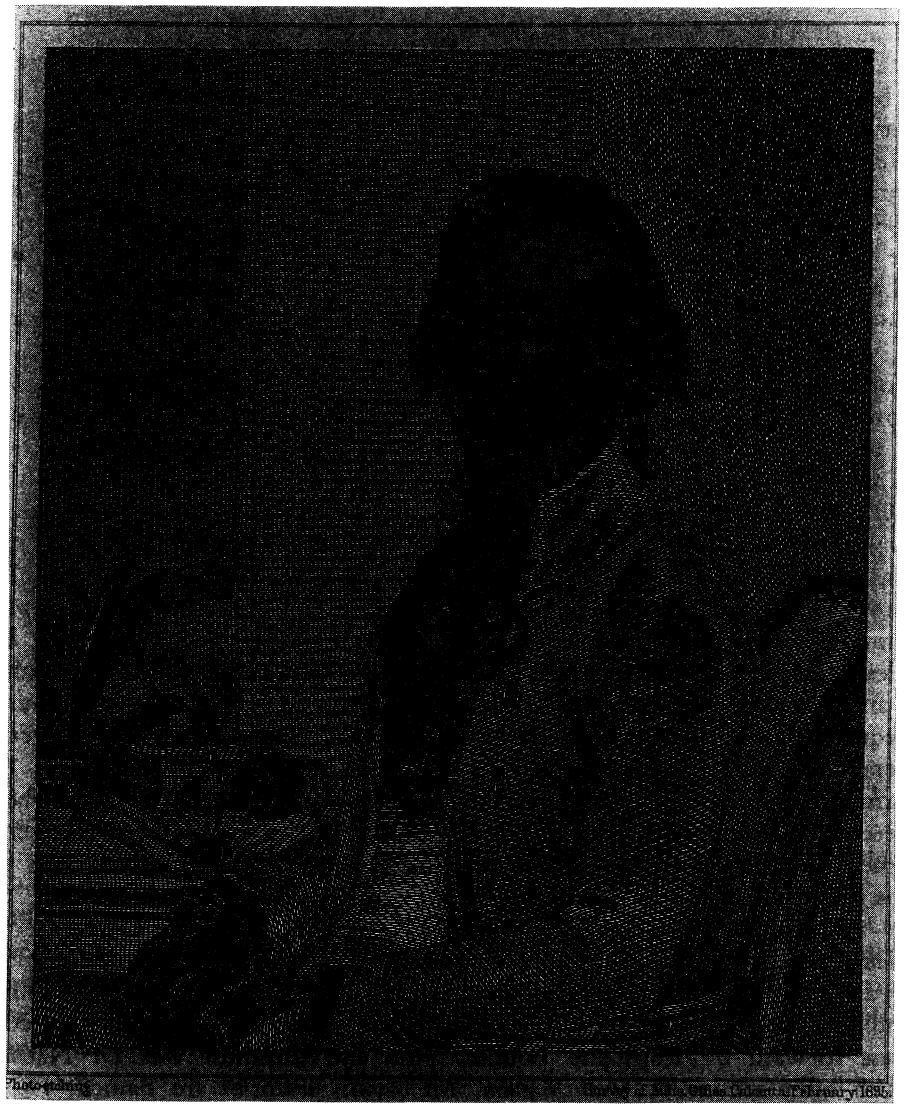

FIGURE 2

William Roxburgh, 1751–1815.

graduated MD and became a Fellow of the Royal College of Physicians, Edinburgh.

Roxburgh's publications, *Plants of the Coast of Coromandel,*[8] established his reputation as a botanist. With the assistance of an Indian artist he produced coloured botanical drawings, over 500 of which were sent to Sir Joseph Banks in England who assisted in the publication in 1794 of some 300 of them. His manuscript *Hortus Bengalensis* published vicariously in 1814 by Dr William Carey DD shows that he had increased the number of species in the Calcutta Botanical Garden from 300 in 1793 to 3,500 by the time he left for Scotland in 1813. He died on 18th February 1815 at Park Place, Edinburgh and was buried in the Greyfriars Churchyard in the tomb of the Boswells, his third wife having been the grand-daughter of Dr John of that ilk.

Sir James Edward Smith 1759–1828

Smith was born in England but sent to Edinburgh in 1781 to study medicine and also botany under Dr John Hope. In 1783 the Linnaean Collections were up for sale and, encouraged by Sir Joseph Banks in London, Smith was persuaded to bid for them. The competition for this archival prize was noteworthy—John Sibthorp at Oxford and the Empress of Russia were among the contenders,—but for £1,088 the Collections were dispatched in 1784 from Sweden to London and were housed at Smith's apartment in Chelsea. Three years later Smith founded the Linnaean Society. He never went to India but it is fitting that he is recognised among the *taxa* of rhododendrons, a splendid crimson variety akin to *r. barbatum.*

Francis Hamilton Buchanan 1762–1829

Following Roxburgh's departure, another Scots doctor, Francis Hamilton Buchanan, became superintendent of the Calcutta Botanical Garden, albeit for a very brief period. His family hailed from the Callander district of Perthshire. While at the University of Edinburgh he became friendly with James Edward Smith (see above) with whom he developed a great interest in collecting botanical specimens. He graduated MD at Edinburgh and in 1794 joined the East India Company's Bengal establishment as a surgeon. Five years later, on Roxburgh's recommendation as 'the best botanist he knew in India', he was sent by Lord Wellesley, then Governor-General in Bengal, to visit and report on agriculture, arts and commerce in Mysore, Canara and Malabar. Shortly after this and a subsequent mission to Nepal, Buchanan was appointed surgeon to the Governor-General and accompanied Lord Wellesley on his voyage to England in 1806. Returning to India Buchanan surveyed parts of West Bengal (now Bihar)[9] before succeeding Roxburgh as superintendent at Calcutta in 1814. However he returned to Scotland the following year to manage the family property as chief of the clan Buchanan.

Nathaniel Wallich 1786–1854 (Fig 3)

If Kyd, Roxburgh and Buchanan could be said to have pioneered the taxonomy of Indian flora, then the generation of medical-botanists that followed carried the process forward by leaps and bounds. First and foremost was Dr Nathaniel Wallich after whom *R. wallichianum, Meconopsis wallichii* are named. He was born in Copenhagen where he obtained his MD. He entered the Danish Medical Service and was surgeon to the Danish settlement at Serampore in Bengal. In

FIGURE 3

Nathaniel Wallich, 1786–1854.

1813 this was taken over by the East India Company and he transferred to the British Service. In 1815 he succeeded Buchanan as superintendent of the Calcutta Botanical Garden and held the post until retiring to England in 1847. He was elected Fellow of the Royal Society in 1829 in recognition of his botanical work, notably his publication of *Plantae Asiaticae Rariores.*[10] Wallich assembled a great Indian herbarium, assisted for a short period in London by Hugh Falconer (of whom more below). In 1820 he made an expedition to Nepal, where he managed to obtain specimens some of which subsequently reached the Royal Botanic Garden in Edinburgh.

His son George graduated MD Edinburgh in 1836 and followed his father into the Bengal Medical Service. For his work while on a survey of the Atlantic bed he was awarded the Linnean Society's Gold Medal for Zoology.

Robert Wight 1796–1872

Meanwhile, at Madras, Robert Wight was endeavouring to combine botanical work with his medical duties. After obtaining his MD at Edinburgh in 1818, he was appointed assistant surgeon in the Madras medical service in 1819 and promoted surgeon in 1831. By that date he had produced *Illustrations of Indian Botany*[11] and *Prodromus Florae Peninsulae Indiae Orientalis*,[11] in 1834. In the 2nd edition of *Illustrations* he wrote,

> Among the Rhodoreae narcotic properties of much intensity exist, which have been found useful in the treatment of nervous diseases and chronic rheumatism. And the oft-quoted case of poisoning during the retreat of the 10,000 Greeks, (of Alexander the Great's army) was attributed to eating honey obtained from either *r.pontica* or *Azalea pontica*.

Vol II of the *Illustrations* has a fine picture of *R.arboreum* (Neilgherry (*sic*) tree), one of the earliest Asiatic rhododendrons to be introduced into Britain. Sir Joseph Hooker, in naming one of the rhododendrons he discovered in Sikkim after Robert Wight, paid handsome tribute to his *Icones Plantarum Indiae Orentalis*[11]— 'a remarkable instance of the perfection to which botanical illustration can be brought by indomitable perseverance under the most discouraging circumstances'. Wight was elected a Fellow of the Royal Society in 1855.

John Forbes Royle 1799–1858

While Calcutta possessed the most distinguished among India's botanical gardens during this period, there were others, notably at Saharanpur in the Punjab where between 1823 and 1831 Royle was superintendent. A medical student at Edinburgh he qualified MRCS in 1819 and then joined the Bengal medical service. He retired from India in 1837 to become professor of materia medica and therapeutics at King's College, London. He became MD Munich and a Fellow of the Royal Society.

At Saharanpur besides having charge of two hospitals he found time to produce a magnificent illustrated work, *Botany of the Himalayan Mountains.*[12] Obviously acquainted with Wight's botanical work, Royle's account makes similar references to certain properties attributable to rhododendrons and azaleas.

> The rhodoreae abound more in stimulant and even deleterious properties. Thus *r.ponticum, r.maximum, r.ferrugineum* and *r.chrysanthemum (sic)* are poisonous to cattle which feed on them, and in moderate doses are used in medicine, as for the cure of rheumatism etc; *Azalea procumbens*, and *Ledum palustre* are accounted diuretic; *Ledum latifolium* or Labrador tea 'determines to the head' while the leaves of *R.campanulatum* are made into snuff?[11] (*op.cit.* p. 259).

Royle also repeats the story about *Azalea pontica* the honey from which was believed to have poisoned the retreating soldiers in Alexander the Great's army.

Royle is described in a recent paper on *Himalayan Explorers and Collectors*[13] as 'botanist, bryologist, lichenologist, phycologist, pteridologist, palaeobotanist, geologist, naturalist, surgeon, medical historian, meteorologist'. Can we wonder then that he also gave a public lecture in London in 1852 on *The Arts and Manufactures of India*, in which he paid handsome compliments to the intellectual attainment of the ancient Hindoos in astronomy and mathematics? The name of Royle is honoured botanically in the suffix of several delightful plants, none more exquisite than *R.cinnabarinum roylei*.

Hugh Falconer 1808–65 (Fig 4)

Royle's successor as superintendent at Saharanpur was Hugh Falconer. Born in

FIGURE 4

Hugh Falconer, 1808–65.

Forres where he is remembered in a small museum, Falconer obtained his MA at Aberdeen followed by his MD at Edinburgh in 1829. After assisting Dr Wallich in London for a short period, he joined as an assistant surgeon the Bengal medical service. When posted to Meerut he was able to visit Royle at Saharanpur, and Royle before going on leave persuaded the military authority to release Falconer to act as his locum. Royle did not return from leave and Falconer became superintendent at Saharanpur Botanical Garden. His substantial contributions to Indian botany were acknowledged by Royle who named a new genus of plants (not rhododendrons) 'Falconeria' after him. It was somewhat later that a whole series of rhododendrons was given the title '*falconeri*' in his honour. Hugh Falconer's place as a natural scientist probably owes more to his contributions as a geologist. Charles Darwin considered him a valued companion and for his

knowledge of fossils, which stemmed from Falconer's discoveries in the Siwalik hills near Saharanpur. In 1834 the Bengal Government commissioned a report on the fitness of India to grow tea, and it was Hugh Falconer who advised on experiments and on the manufacture of tea.

His botanical herbarium unfortunately suffered from damp and neglect by the East India Company in London, and it was not until 1857 that Kew Gardens obtained some of the material that had survived. Despite recurring ill-health Falconer returned to India in 1847 to succeed Wallich as the superintendent at Calcutta Botanical Garden, where he stayed until 1855.

William Griffith 1810–45

After attending University College London he qualified MRCS in 1829. He joined the Madras medical service and in 1835 was sent with Wallich and MacLelland to explore Assam. He was the first botanist to visit Bhutan as a member of a diplomatic mission in 1838, and in the few months spent there he amassed a collection of some 1,200 plant specimens, many newly discovered. It was not until Hooker visited Sikkim in 1849–51 that many of Griffith's specimens were identified and named. In 1841 he was posted to Malacca on medical duties but was soon recalled to act as locum superintendent of the Calcutta Botanic Garden when Wallich went on leave to the Cape for reasons of health. Griffith returned to his post in 1844 but early the next year he died of hepatitis shortly before his thirty-fifth birthday. Griffith unlike the other doctors considered in this paper had no Edinburgh connection. Nevertheless, to omit his name would be unthinkable for those who have sampled the delights of *r. griffithianum* or *primula griffithii*.

Sir Joseph Dalton Hooker 1817–1911 (Fig 5)

The son of an equally distinguished father, Sir William Hooker, he was educated in Glasgow where he graduated MD in 1839. He then went as surgeon botanist on the expedition of HM *Erebus* to the Antarctic returning in 1843. His reports on the botany of the voyage impressed Charles Darwin whom he supported both scientifically and by helping to sustain the morale of that great neurotic throughout the rest of his long life.[14] But Hooker had to get a job and he became briefly a lecturer in botany at Edinburgh. In 1845 the chair of medicine and botany fell vacant and he applied but, despite Darwin's support, was unsuccessful. Then greatly to Darwin's annoyance he set out on another expedition, this time to Sikkim in India. In two highly productive years (1849–51) he identified and named some 30 new species of rhododendrons, described in his book *The Rhododendrons of Sikkim-Himalaya*.[15] In 1855 he joined his father as assistant director at Kew and succeeded him as director in 1865.

EPILOGUE

This paper gives but the merest outline of the famous medical botanists who have, among many other considerable achievements, enriched our flora in Britain and notably our rhododendrons. Their work led up to a new stage in plant-hunting and identification which propagation accelerated. While the second half of the 19th century may be a far cry from the days of Sibbald and Balfour, it heralded a great procession. So far as the introduction to this country of rhododendrons is concerned, when Sir Joseph Hooker opened up the tremendous

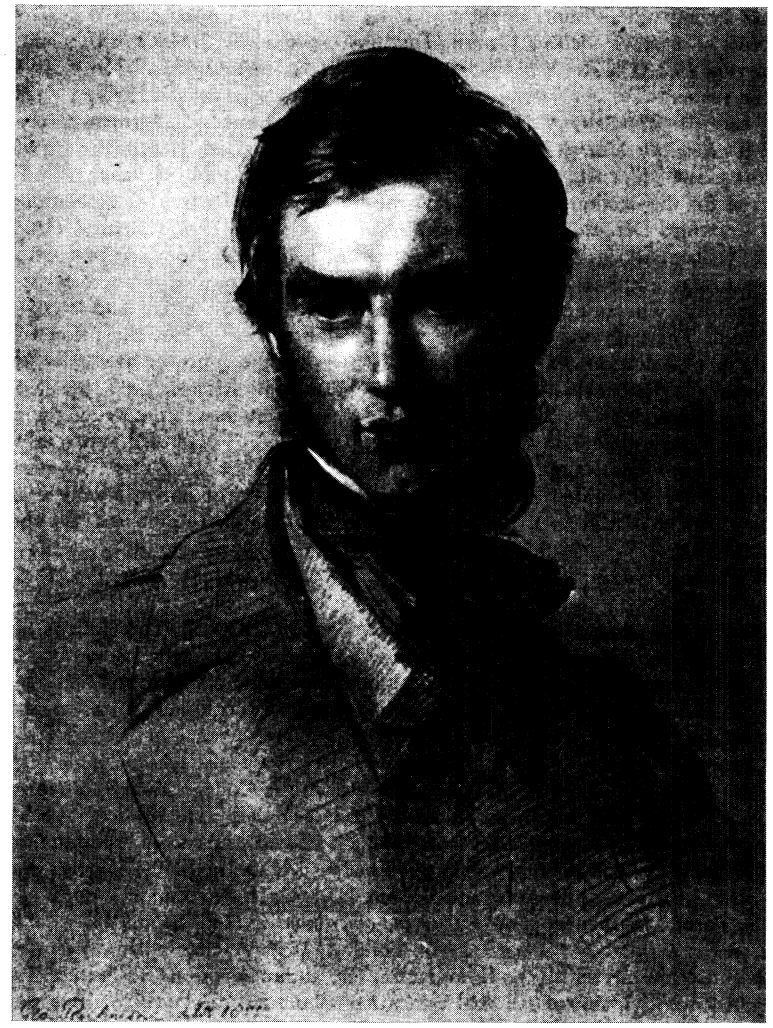

FIGURE 5

Joseph Dalton Hooker, 1817–1911 (Portrait by George Richmond, 1855).

potential that Himalayan plant-hunting offered, the stimulus and the challenge did not go unnoticed. Ever since that mid-point of the nineteenth century, expeditions to the mountainous regions of India, Bhutan, Nepal, Sikkim and, when political conditions allowed, China have produced an ever richer knowledge of rhododendrons and azaleas. Taxonomists may debate the niceties of nomenclature, but without the resolute enterprise of men like Royle and Falconer they would have little to argue over. Following Hooker's brilliant additions to the list of species in the 1850s, others like Robert Fortune, George Forrest and George Sherriff carried on the great tradition into this century—and the story is by no means over.

REFERENCE AND NOTES ON EDITIONS IN THE COLLEGE LIBRARY

[1] Nichols, Beverley. *Gardens Open Today* 1962.

[2] Two books giving full accounts of the history of the Garden up to recent times are Fletcher H, Brown WM. *The Royal Botanic Garden, Edinburgh 1670–1970.* HMSO, 1970, and Deni Bown *Four Gardens in One. The Royal Botanic Garden, Edinburgh.* HMSO 1992.

[3] Sibbald, Sir Robert. *The Autobiography.* Edinburgh: Thomas Stevenson 1833.

[4] Grant, Sir Robert. *The Story of the University of Edinburgh.* London: Longmans Green 1884.

[5] Desmond R. *Kew, the History of the Royal Botanic Garden.* London: Harvill Press 1995.

[6] Rhandhama GS, Chadra KL, Daljit Singh (eds). *The Famous Gardens of India.* New Delhi 1978.

[7] The material for this section has been taken mostly from the Dictionary of National Biography and from Crawford DG. *Roll of the Indian Medical Service 1615–1930.* Calcutta: Thacker 1930.

[8] Roxburgh William. *Plants of the coast of Coromandel* 2 vol in 1. London, 1795–98. The College Library has a large 'elephant' folio volume of this, one of the most impressive botanical books of the 18th century. The original drawings were done by Indian artists and then engraved and hand-coloured. The engraver of some of the 200 illustrations, if not the majority, was Daniel Mackenzie; one illustration bears the name of F. Sansom, the engraver of the illustrations in the early volumes of *The Botanical Magazine* which began publication in 1787. Mackenzie had been employed as an engraver by Sir Joseph Banks when the latter was preparing the plates for the plants collected during Captain Cook's first voyage in 1768–71. He died apparently in 1800. He also engraved for Franz Bauer, outstanding artist and botanist who was 'Botanical Painter' to King George III. The Mughal emperors had been the patrons of Indian botanical artists and the latter found a new patron in the East India Company and its employees, Roxburgh and his successors.

[9] Sinha KK. Francis Buchanan (Hamilton): Physician botanist and surveyor. *Proc R Coll Physicians Edin* 1993; **23:** 36–42.

[10] Wallich Nathaniel. *Plantae Asiaticae rariores* 3 vol. London, 1830–32. The College library has this impressive work in three large folio volumes. The drawings were done by Indian artists, including Vishnupersaud, and the plates and lithographs done by Maxim Gauci, a Maltese who had become a master of the new art of lithography. All coloured plates at this time were coloured by hand.

[11] Wight Robert. *Illustrations of Indian Botany; or figures illustrative of each of the natural orders of Indian plants.* 2 vol. Madras, 1838–53. This work also in the College library contains 182 coloured plates. Again, Wight used Indian artists but he did the lithographs himself. Whilst on leave in Edinburgh, recovering from jungle fever in 1831–34, he had studied the lithographic process. The Library also contains his 6 volume work, published in Madras in 1840–53, *Icones plantarum Indiae orientalis*, with 2,101 plates. These are uncoloured, however, in the Library's copy.

[12] Royle John Forbes. *Illustrations of the botany and other branches of the natural history of the Himalayan mountains, and of the flora of Cashmere* 2 vol. London, 1839. Again, Indian artists drew the plants for Royle and Gauci produced the lithographs. The author wrote in his Preface '... the Author must express his conviction of the skill which Mr Gauci has displayed in the representations of the Plants figured, and in which he has been well seconded, first by Mr Clarke, and latterly by Mr Barclay in the Colouring'. There are 97 plates, including two of rhododendrons.

[13] Sudhir Chandra *Himalayan Explorers and Collectors*—John Forbes Royle 1799–1858. Reprinted from Himalayan Research and Development 1984. 3.(1) pp 70–4.

[14] Desmont A, Moore J. *Darwin* 1991 Penguin books.

[15] Hooker Sir Joseph Dalton. *The rhododendrons of Sikkim-Himalaya* 3 pts. 2 vol London, 1849. This is another book in the College library outstanding both for content and botanical illustration. The latter are again lithographs, made from Hooker's own sketches by Walter Hood Fitch. Fitch was a calico designer in Glasgow who was taken south by Hooker's father, Sir William Hooker, when the latter became Director of Kew. Fitch became the greatest botanical artist of the 19th century in Europe and the most prolific. For 40 years he was the sole artist of *The Botanical Magazine* and provided the illustrations for many books. Nearly one thousand published drawings of his have been recorded. Wilfred Blunt and WT Stearn in their *The art of botanical illustration* (Antique Collectors' Club, new ed. 1994) reckoned that Fitch although he produced 'faultless acres' of drawings yet he 'never entirely mastered Gauci's knack of achieving precision without losing sensitiveness of outline'.

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TWO MEN AND A BUG: ONE HUNDRED YEARS OF TUBERCULOSIS IN EDINBURGH*

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The Royal Victoria Hospital, the first tuberculosis sanatorium to be opened in Edinburgh celebrated its centenary in 1994. The one hundred years encompass changes in the toll of tuberculosis unpredictable in 1894; then, the mortality rate for tuberculosis was over $300/10^5$ population; now the notification rate for tuberculosis in Edinburgh is $<8/10^5$. These changes in tuberculosis morbidity and mortality did not occur by chance. Two men of vision and determination were largely responsible for Edinburgh's contribution to the success of the battle against tuberculosis—Sir Robert Philip (1857–1939) who developed the Edinburgh Scheme for Tuberculosis and Sir John Crofton (1912–) who demonstrated that the disease was curable by appropriate chemotherapy; both were to achieve national and international recognition in their own lifetime for their separate contributions.

SIR ROBERT W. PHILIP

Early career

Robert William Philip (Fig 1) was born in Govan in 1857 and moved to Edinburgh in 1866 when his father was appointed Minister to St John's, now St Columba's, Free Church. He was educated at the Royal High School on Calton Hill overlooking the underlying city wards of St Giles and the Canongate which had the highest death rates in the city from tuberculosis, over 3/1,000 per year. He graduated in Arts at Edinburgh University and later in Medicine with Honours in 1882, the year that Koch described the tubercle bacillus to the Physiological Society in Berlin.[1] Philip went to Vienna for postgraduate study where he saw for the first time the tubercle bacillus stained with hot alkaline methylene blue. He was quick to appreciate that if tuberculosis was due to transmission of infection with this bacillus then it should be a preventable disease.

On his return to Edinburgh in 1883 he served his term as a resident in the Royal Infirmary. Following this he was appointed assistant physician to Sir Thomas Grainger Stewart in the Royal Infirmary and simultaneously as an assistant in the New Town Dispensary at 17 East Thistle Street. At the same time he began research on the aetiology and treatment of tuberculosis for which he was awarded an MD with gold medal in 1887.[2] Philip was not satisfied with the management of tuberculous patients in the New Town Dispensary. Cough mixtures were prescribed and while the seriously ill might be admitted to hospital, more often they were simply visited at home by a medical student. No attention was paid to the social component of the disease which Philip now appreciated was infectious.

The first tuberculosis dispensary in the world

Philip felt there should be a directory for each patient containing details about

*Based upon the Royal Infirmary NHS Trust Medical Archive Lecture, 1994.